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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,031	11/09/2001	Alevtina Smirnova	200-1215 DP	6086

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EXAMINER

NOLAN, SANDRA M

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 05/15/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/683,031

Applicant(s)

SMIRNOVA ET AL.

Examiner

Sandra M. Nolan

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 March 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 14-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>7</u> . | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claims***

1. Claims 1-27 are pending. Claims 1-13 are under consideration.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 04 March 2003 (Paper No. 7) was considered by the examiner.

### ***Objections Withdrawn***

3. The objections to the title, expressed in sections 4 and 5 of the 02 January 2003 office action (Paper No. 6), is withdrawn in view of the new title submitted in the response dated 04 March 2003 (Paper No. 8).

### ***Rejections Withdrawn***

4. The 35 USC 112 rejection of claims 1-13 for indefiniteness, set out in section 7 of Paper No. 6, is withdrawn in view of applicants' arguments in Paper No. 8.
5. The 35 USC 102 rejection of claims 1 and 2 as anticipated by Barnard et al (US-5,574,957), as set out in section 10 of Paper No. 6, is withdrawn in view of applicants' amendments in Paper No. 8.
6. The 35 USC 103 rejection of claims 1-13 as unpatentable over Theodore et al (US 4,615,851) in view of Barnard and JP 04327216A (abstract).

### ***New Rejections***

#### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1772

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chalasan et al (US 6,080,345) in view of Theodore et al (US 4,615,861<sup>5</sup>).

Chalasan et al teaches the forming and shaping of mixtures by blending solvent/- binder compositions (col. 7, lines 8-13) with ceramics (col. 4, lines 4-14), removing part of the solvent (col. 9, lines 2-8), and extrusion of a green body (col. 10, lines 15-21).

It fails to teach the use of the claimed resin mixture or the burnout and sintering of green bodies.

Theodore is discussed in section 12 of Paper No. 6. Note that Theodore use its burnout and sintering techniques and its resins to make extruded thin-walled bodies (abstract) that are useful in sodium sulfur batteries (col. 1, lines 64). Its products are straight, smooth and free of impurities and imperfections (col. 1, lines 27-31).

The references are analogous because they both deal with ceramic articles.

It would have been obvious to one having ordinary skill in the art at the time that the invention was made to employ the resin mixtures and sintering step of Theodore in the process of Chalasan et al in order to make thin-walled articles.

The motivation to employ the resins and sintering steps of Theodore as part of the mixing and shaping process of Chalasan et al is found in Theodore's abstract and at col. 1, lines 27-31 and 64 of Theodore, where the use of burnout, sintering and resin mixtures are taught to make extruded thin-walled articles for use in sodium sulfur batteries that are straight, smooth and free of impurities and imperfections.

Art Unit: 1772

It is deemed desirable to make thin-walled sintered articles for batteries, which articles are straight, smooth and free of impurities and imperfections in order to meet quality assurance standards during sodium sulfur battery production.

9. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chalasani in view of Takeuchi et al (US 5,733,499).

Chalasani is discussed above.

It fails to teach the use of benzene or toluene as a solvent for its binders or yttria-stabilized zirconia as the ceramic powder.

Takeuchi teaches benzene and toluene as solvents (col. 6, line 43-44) and yttria-stabilized zirconia as the ceramic powder (col. 4, lines 18-20) in fired green articles (abstract). The article may be thin (col. 1, lines 23-25).

The patents are analogous because they both deal with ceramic articles.

It would have been obvious to one having ordinary skill in the art at the time that the invention was made to employ the benzene or toluene solvent and the yttria-stabilized zirconia powder of Takeuchi in the process of Chalasani order to make thin ceramic green articles.

The motivation to employ the solvents and ceramic powder of Takeuchi in the process of Chalasani is found at col. 1, lines 23-25 of Takeuchi, where the production of thin articles is discussed.

It is deemed desirable to make thin articles using ceramic particles and solvent/binder mixtures so that the articles have ceramic powder uniformly distributed therein.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chalasani in view of the Liang et al article.

Chalasani is discussed above. It teaches zirconia powder at col. 4, line 9.

It fails to teach the use of yttria-stabilized zirconia along with nickel oxide as its ceramic powder.

Liang teaches that yttria-stabilized zirconia along with nickel oxide is conventionally used to make extruded tubes for fuel cells (abstract). See page 588, under "Experimental Procedures". The extruded tubes avoid production problems (page 587, last paragraph).

The references are analogous because both deal with zirconia-containing articles.

It would have been obvious to one having ordinary skill in the art at the time that the invention was made to employ the yttria-stabilized zirconia/nickel oxide combination of Liang as the powder in the process of Chalasani in order to make green articles for use in the production of tubes for fuel cells.

The motivation to employ Liang's yttria-stabilized zirconia/nickel oxide combination as the powder in the process of Chalasani is found in Liang's abstract, where the use of its yttria-stabilized zirconia/nickel oxide mixtures in fuel cells is taught and in the last paragraph on page 587, where extruded tubes are said to avoid production problems.

Art Unit: 1772

It is deemed desirable to make fuel cells from yttria-stabilized zirconia/nickel oxide combinations, using the process of Chalasani, in order to facilitate the production of the cells, per Liang.

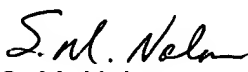
***Response to Arguments***

11. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication should be directed to the Examiner, Sandra M. Nolan, whose telephone number is 703/308-9545. The Examiner can normally be reached on Monday through Thursday, from 6:30 am to 4:00 pm, Eastern Time.

If attempts to reach the Examiner by telephone are unsuccessful, her supervisor, Harold Pyon, can be reached at 703/308-4251. The general fax number for the art unit is 703/305-5436. The fax number for after final communications is 703/872-9310. The receptionist answers 703/308-0661.

  
S. M. Nolan  
Patent Examiner  
Technology Center 1700

SMN/smn  
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14 May 2003